Human Resource Development Council of South Africa
Maths and Science Standing Committee
Terms of Reference

I. Background

The Mathematics and Science Standing Committee was established by the Human Resource Development Council (HRDC) of South Africa to address challenges and opportunities in STEM (science, technology, engineering, and mathematics) disciplines (particularly in mathematics and science) at both basic and higher education levels in South Africa.

Being able to participate successfully in STEM subjects at primary and secondary school level has important implications for higher education and professional success. Currently, less than a third of students can be described as "competent" in terms of mathematical and scientific ability at basic education level, and less than 36% of students who are able to access tertiary education with their Matric qualification receive a score of more than 50% for Mathematics. Therefore, it is only a fraction of South African students who are able to access STEM-based tertiary education programmes. Of the students who do access these programmes, the majority are male, and South Africa is currently not able to produce sufficient graduates in STEM disciplines to meet its growing professional demands (Reddy, Bhorat, Powell, Visser, & Arends, 2016).

In relation to international trends, South Africa was among the lowest performing countries in the world for mathematics (38th out of 39 countries) and science (39th out of 39 countries) at grade 8/9 level for the Trends in International Mathematics and Science Study (TIMSS) in 2015. Although South Africa's performance in this study has shown improvement since 2003, it is clear that (a) access to and achievement in mathematics and science remains divided by socio-economic status, and (b) there are a number of areas in which we can improve our STEM education offerings (Reddy, Visser et al., 2016).

The work of the Standing Committee is a collaborative process and will reflect broad consultation with the wider mathematics and sciences communities. Key partners in this process include the Department of Higher Education and Training, Department of Science and Technology, Department of Basic Education, National Teachers' Unions, Universities South Africa as well as national associations in the different mathematics and science disciplines.

II. Mandate

The following areas comprise the mandate of the HRDC Mathematics and Science Standing Committee:

1. To provide advice and recommendations on
    - Strategies to improve mathematics and science engagement and participation in public spaces including, but not limited to, community members, teachers, parents, and learners;
    - Strategies to improve performance of students in mathematics and science at both basic and higher education levels including:
        - Development of clear mathematics and science learning standards, curricula and assessment tools;
        - Adequate preparation of basic education mathematics and science learners for tertiary education study in STEM disciplines;
        - Appropriate assessment standards for matric mathematics and science to ensure readiness for tertiary education.
    - Strategies to improve the education of, and support for, basic education mathematics and science teachers, focusing on:
        - The selection of high quality students into mathematics and science Initial Teacher Education (ITE) programmes;
        - Curricula standards for ITE programmes in mathematics and science;
        - Initial and pre-service teacher education including qualification requirements and induction for mathematics and science teachers;
        - Nature, quality and support of continuing professional development programmes for in-service teachers;

- Contributing towards the development of mathematics and science teacher professional standards;
- Monitoring and evaluating the quality and impact of teacher education at initial teacher education, pre- and in-service levels;
- The supply of suitably qualified mathematics and science teachers from foundation, intermediate to further education and training phases.

2. To publish advisory notes/policy briefs to guide decision-making in mathematics and science;
3. To co-ordinate and align preexisting initiatives in the areas of mathematics and science education to enable coherence, develop productive collaborations, and create greater impact of these initiatives;
4. To develop strategies to ensure representative, relevant, and useful long-term research and development for the mathematics and sciences in South Africa.

III. Governance, Operation and Financial Support

A chairperson appointed by the committee leads the work of the Standing Committee. Professor Mamokgethi Phakeng, from the University of Cape Town, was appointed as the Chairperson of the Standing Committee on 16 September 2016.

The HRDC will provide the Standing Committee with appropriate financial support for contracting: (a) a project manager for the purposes of conducting the required desktop research, and consultation community input and the preparation of a monthly report, and (b) an administrative assistant for the purposes of organising meetings, travel of Committee members to these meetings and all other administrative support that the chairperson and project manager may require.

IV. Membership of the Standing Committee

The Standing Committee will be composed of representatives from key role players in the sector including but not limited to the following:

- The Department of Higher Education and Training (DHET)
- The Department of Basic Education (DBE)
- The Department of Science and Technology (DST)

- The South African Mathematics Foundation (SAMF)
- Universities South Africa (USAF)
- Human Sciences Research Council (HSRC)
- The South African Association for Science Education (SAASTE)
- Other key role players from the Mathematics and Science sector:
- Organised Labour

During the course of its work, the Standing Committee, and expertise sourced by the Standing Committee, may consult key stakeholders. The Standing Committee should draw on research undertaken in South Africa on the state of mathematics and Science education and may commission work if it is deemed necessary. The task team will provide the HRDC with an interim report within the first six months of its appointment.

V. Conflicts of Interest and Confidentiality

All members must strictly comply with the Guidelines for the functioning of the HRDC of South Africa. Moreover, for the purpose of this exercise, a member will be considered to be in a situation of conflict of interest during a discussion on prioritisation of a specific endeavour that would directly benefit the member or the member's institution/organisation.

Members of the Standing Committee may not present the work of the Committee as theirs. Only the chairperson is mandated to make presentations to the HRDC and/or speak on behalf of the Standing Committee.

VI. References

Reddy, V., Bhorat, H., Power., M., Visser, M., & Arends, A. (2016) Skills supply and demand in South Africa. Labour Market Intelligence Partnership Publication, Human Sciences Research Council, Pretoria.

Reddy, V., Visser, M., Winnaar, L., Arends, F., Juan, A., & Prinsloo, C. H. (2016). *TIMSS 2015: Highlights of mathematics and science achievement of Grade 9 South African learners.* Human Sciences Resource Council.